

Como Acceder y Analizar Datos de SMAP

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Objetivos

Al finalizar este ejercicio podrán:

- Acceder datos de SMAP
- Visualizar y analizar datos de SMAP



Resumen General

- Resumen de los Productos de SMAP
 - Descripción de los productos
 - Formato de los productos
- Descubrir, Bajar y Visualizar los Datos de SMAP
 - Sitios en línea
 - Herramientas
- Descargar datos de SMAP
- Análisis con Datos de SMAP
 - Extracción de valores de humedad del suelo
 - Como abrir un archivo





Resumen de los Productos de SMAP

Productos de Datos de SMAP

Nombre Resumido	Descripción	Resolución	Extensión
L1A_Radar*	Telemetría del radar		Mitad de Orbita
L1A_Radiometer	Telemetría del radiómetro		Mitad de Orbita
L1B_S0_LoRes*	Datos del radar en baja resolución	5x30 km (10 tiras)	Mitad de Orbita
L1C_S0_HiRes*	Datos del radar en alta resolución	1 km	Mitad de Orbita
L1B_TB	Datos del radiómetro de acuerdo a la hora adquirido	39x47 km	Mitad de Orbita
L1C_TB	Datos del radiómetro T_b	36 km	Mitad de Orbita
L2_SM_A*	Humedad del suelo derivado del radar (incluye estado congelado/descongelado de la superficie)	3 km	Mitad de Orbita
L2_SM_P	Humedad del suelo derivado del radiómetro	36 km	Mitad de Orbita
L2_SM_AP*	Humedad del suelo derivado del radar y radiómetro	9 km	Mitad de Orbita
L3_FT_A*	Mosaico global diario del estado congelado/descongelado de la superficie	3 km	Al Norte de 45° N
L3_SM_A*	Mosaico global diario de la humedad del suelo utilizando el radar	3 km	Global
L3_SM_P	Mosaico global diario de la humedad del suelo utilizando el radiómetro	36 km	Global
L3_SM_AP*	Mosaico global diario de la humedad del suelo utilizando el radar y el radiómetro	9 km	Global
L4_SM	Humedad del suelo en la superficie y en las raíces	9 km	Global
L4_C	Intercambio neto de carbono en el ecosistema	9 km	Al Norte de 45° N

*Solamente disponible durante los 2.5 meses que opero el radar (mediados de Abril – Julio 7 del 2015)



Productos de Datos de SMAP- Resumen

Productos de Datos de SMAP Actualizados

Producto	Descripción	Resolución en Cuadrícula	Fuente de Algoritmo
L1A_Radiometer	Datos Radiométricos en Orden Cronológico	-	Mission DA
L1B_TB	Radiómetro T_B en Orden Cronológico	39 x 47 km	Mission DA
L1C_TB	Radiómetro T_B en Mitades de Órbita	36 km	Mission DA
L1C_TB_E	Radiómetro T_B en Mitades de Órbita, Mejorado	9 km	Mission DA
L2_SM_P	Humedad del Suelo (Radiómetro)	36 km	Mission DA
L2_SM_P_E	Humedad del Suelo (Radiómetro)	9 km	Mission DA
L2_SM_SP	Humedad del Suelo (Radar Sentinel + Radiómetro)	3 km	Mission DA
L3_FT_P	Humedad del Suelo (Radiómetro)	36 km	Mission DA
L3_SM_P_E	Humedad del Suelo (Radiómetro, Mejorada)	3 km	Mission DA
L3_SM_P	Humedad del Suelo (Radiómetro)	36 km	Mission DA
L3_SM_P_E	Humedad del Suelo (Radiómetro, Mejorada)	9 km	Mission DA
L4_SM	Humedad del Suelo (Superficie y Zona de Raíces)	9 km	Mission DA
L4_C	Intercambio Ecosistémico de Carbono Neto (NEE)	9 km	Mission DA



Configuración de los Productos

- **Todos los productos están en formato HDF5**

- Cada archivo HDF5 contiene los datos primarios (ej. humedad del suelo, estado congelado /descongelado de la superficie) y todos los archivos utilizados en la producción del producto.
- Los archivos contienen metadatos, ubicación, señalizaciones o mascararas, etc.

- **Proyección: EASE2 Grid 2.0**

- Proyección de igual área
- Los productos L2, 3, y 4 y los datos del radiómetro L1C se encuentran en esta proyección

- **Valores**

- Los datos del radiómetro (temperatura de brillo) están en Kelvin
- Los datos del radar están en sigma cero
- La humedad del suelo es una medición volumétrica expresada como cm^3/cm^3
- El estado congelado /descongelado de la superficie es una medida binaria
- Intercambio neto de carbono en el ecosistema es una medición de gramos de carbono por metro cuadrado por día





Descubrir, Bajar y Visualizar los Datos de SMAP

Sitios en Línea Donde Descubrir, Descargar y Visualizar Datos de SMAP

NSIDC: Búsqueda de datos, documentación y acceso

<http://nsidc.org/data/search/>

Worldview: Visualización de datos y descarga

<http://worldview.earthdata.nasa.gov/>

Earthdata: Acceso a datos y configuración de los datos descargados

<http://search.earthdata.nasa.gov/>

NSIDC National Snow & Ice Data Center

Scientific Data Search

Parameter

Spatial Coverage

Temporal Duration

Format

Showing 1-25 of 51 Data Sets

Sort by: Relevance (highest to lowest) Per page: 25

SMAP L3 Radiometer Global Daily 36 km EASE-Grid Soil Moisture

Temporal Coverage 2015-03-31 to continuous

Parameter Brightness Temperature | Soil Moisture

Data Format HDF5

Summary This Level-3 (L3) soil moisture product provides a composite of daily estimates of global land surface conditions retrieved by the Soil Moisture Active Passive (SMAP) passive microwave radiometer. ...More Detail

SMAP Enhanced L3 Radiometer Global Daily 9 km EASE-Grid Soil Moisture

Temporal Coverage 2015-03-31 to continuous

Parameter Brightness Temperature | Soil Moisture

Data Format HDF5

Summary This enhanced Level-3 (L3) soil moisture product provides a composite of daily estimates of global land surface conditions retrieved by the Soil Moisture Active Passive (SMAP) passive microwave radiometer. ...More Detail

SMAP L2 Radiometer Half-Orbit 36 km EASE-Grid Soil Moisture

Temporal Coverage 2015-03-31 to continuous

Parameter Brightness Temperature | Soil Moisture

Data Format HDF5

Summary This Level-2 (L2) soil moisture product provides estimates of global land surface conditions retrieved by the Soil Moisture Active Passive (SMAP) passive microwave radiometer. ...More Detail

SMAP Enhanced L2 Radiometer Half-Orbit 9 km EASE-Grid Soil Moisture

Temporal Coverage 2015-03-31 to continuous

Parameter Brightness Temperature | Soil Moisture

NASA WORLDVIEW

Layers Events Data

OVERLAYS

Soil Moisture 9 km (L3, Passive, Day) SMAP / Radiometer

BASE LAYERS

2017 NOV 14

DAYS MONTHS

EARTHDATA Search

Find a DAAC

spi3smp

2 Matching Collections

SMAP L3 Radiometer Global Daily 36 km EASE-Grid Soil Moisture V004

166 Granules • 2015-03-31 ongoing • Daily global composites of up to 30 half-orbit L3, SM_P soil moisture estimates based on radiometer brightness temperature measurements acquired by the SMAP radiometer during ascending and descending half-orbits at approximately 6 PM and 6 AM local solar time.

SMAP Enhanced L3 Radiometer Global Daily 9 km EASE-Grid Soil Moisture V001

166 Granules • 2015-03-31 ongoing • Daily global composites of up to 30 half-orbit L3, SM_P soil moisture estimates based on radiometer brightness temperature measurements acquired by the SMAP radiometer during ascending and descending half-orbits at approximately 6 PM and 6 AM local solar time.



National Snow & Ice Data Center (NSIDC)

Centro Nacional de Datos de la Nieve y del Hielo

<http://nsidc.org/data/smap/>

- Brinda acceso a datos radiométricos de Nivel 1 y a todos los productos de radiómetro de Nivel 2, 3 y 4
- Permite acceso a datos, documentación para usuarios de conjuntos de datos, herramientas, investigaciones publicadas, información de calidad, preguntas frecuentes y muchos otros recursos
- Acceso directo a dato de SMAP (con cuenta de usuario) a través de:
 - HTTPS: <https://n5eil01u.ecs.nsidc.org/SMAP/>
- Suscríbase aquí: <http://nsidc.org/daac/subscriptions.html> para una entrega automática de datos según se vuelven disponibles



Worldview

<http://worldview.earthdata.nasa.gov>

- Visualización y descarga
- Imágenes disponibles generalmente dentro de varias horas
- Imágenes de salida en formatos JPEG, PNG, GeoTIFF y KML

Earthdata Search

<http://search.earthdata.nasa.gov/>

- Le permite busca, ordenar y visualizar todos los datos de SMAP
- Uno puede realizar una búsqueda por palabra clave, espacial, o temporal
- Reformatea, re proyecta y crea subconjuntos de servicios para la mayoría de productos



Herramientas

El Grupo de Apoyo HDF5: http://support.hdfgroup.org/products/hdf5_tools/

Le permite acceder y visualizar datos HDF5 de SMAP usando Python, NCL, MATLAB® y IDL®

- Acceso a herramientas HDF5:
 - http://support.hdfgroup.org/products/hdf5_tools/index.html
- Descargue código en Python, NCL, MATLAB® y IDL®:
 - http://hdfeos.org/zoo/index_openNSIDC_Examples.php#SMAP



Herramientas que Trabajan con Datos de SMAP en Formato HDF5

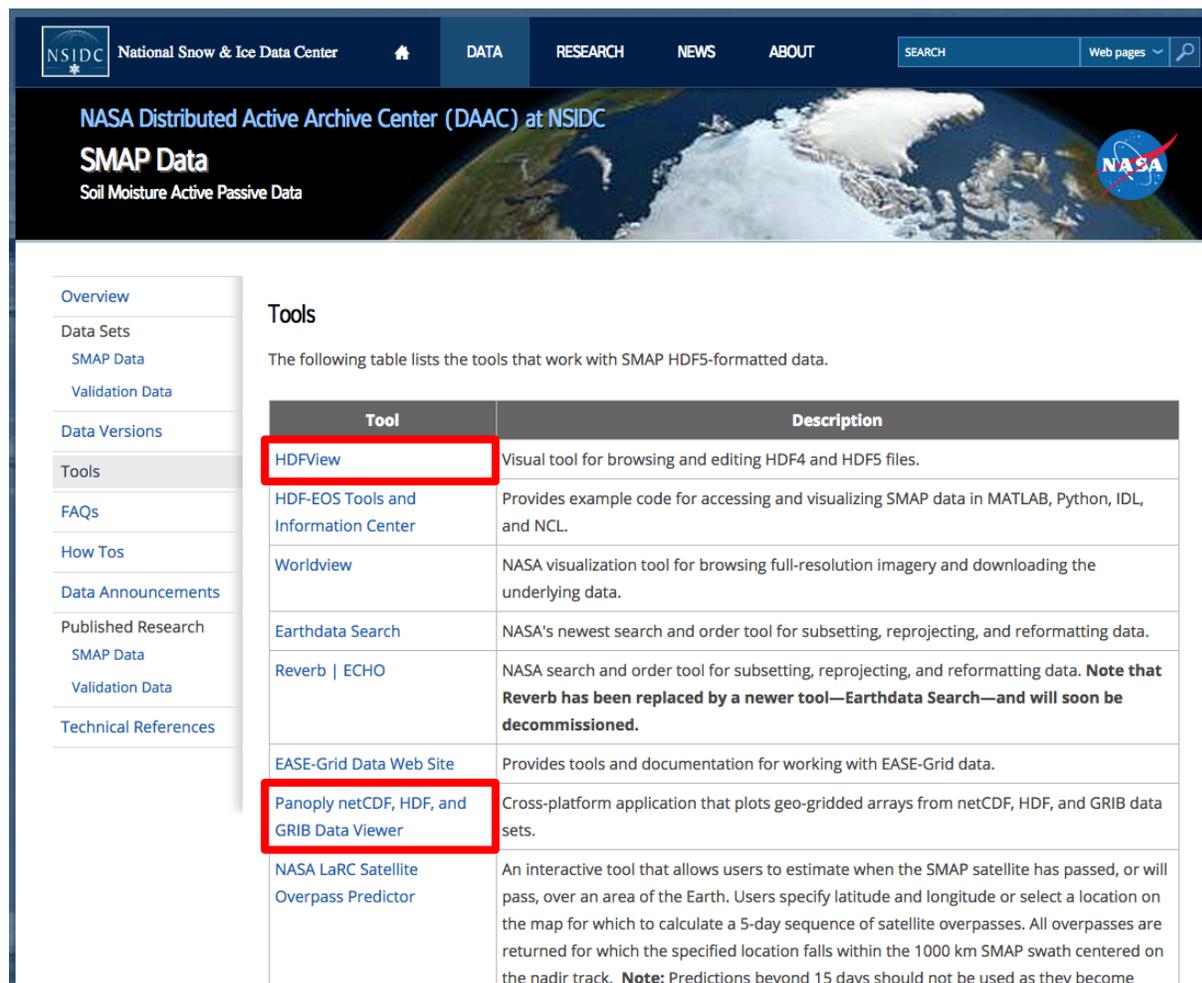
<http://nsidc.org/data/smap/tools>

- El formato nativo de los archivos de datos de SMAP es HDF5. NSIDC ofrece una página de herramientas con dos herramientas para la visualización fácil de archivos HDF5: Panoply y HDFView

– http://support.hdfgroup.org/products/hdf5_tools/index.html

- Descargue código en Python, NCL, MATLAB® y IDL®:

– http://hdfeos.org/zoo/index_opennsidc_examples.php#SMAP



The screenshot shows the NSIDC website's 'SMAP Data' page. The page header includes the NSIDC logo, 'National Snow & Ice Data Center', and navigation links for DATA, RESEARCH, NEWS, and ABOUT. Below the header, it identifies the 'NASA Distributed Active Archive Center (DAAC) at NSIDC' and 'SMAP Data: Soil Moisture Active Passive Data'. A sidebar on the left lists navigation options like Overview, Data Sets, and Tools. The main content area features a 'Tools' section with a table listing tools for working with SMAP HDF5 data. Two tools, 'HDFView' and 'Panoply netCDF, HDF, and GRIB Data Viewer', are highlighted with red boxes.

Tool	Description
HDFView	Visual tool for browsing and editing HDF4 and HDF5 files.
HDF-EOS Tools and Information Center	Provides example code for accessing and visualizing SMAP data in MATLAB, Python, IDL, and NCL.
Worldview	NASA visualization tool for browsing full-resolution imagery and downloading the underlying data.
Earthdata Search	NASA's newest search and order tool for subsetting, reprojecting, and reformatting data.
Reverb ECHO	NASA search and order tool for subsetting, reprojecting, and reformatting data. Note that Reverb has been replaced by a newer tool—Earthdata Search—and will soon be decommissioned.
EASE-Grid Data Web Site	Provides tools and documentation for working with EASE-Grid data.
Panoply netCDF, HDF, and GRIB Data Viewer	Cross-platform application that plots geo-gridded arrays from netCDF, HDF, and GRIB data sets.
NASA LaRC Satellite Overpass Predictor	An interactive tool that allows users to estimate when the SMAP satellite has passed, or will pass, over an area of the Earth. Users specify latitude and longitude or select a location on the map for which to calculate a 5-day sequence of satellite overpasses. All overpasses are returned for which the specified location falls within the 1000 km SMAP swath centered on the nadir track. Note: Predictions beyond 15 days should not be used as they become

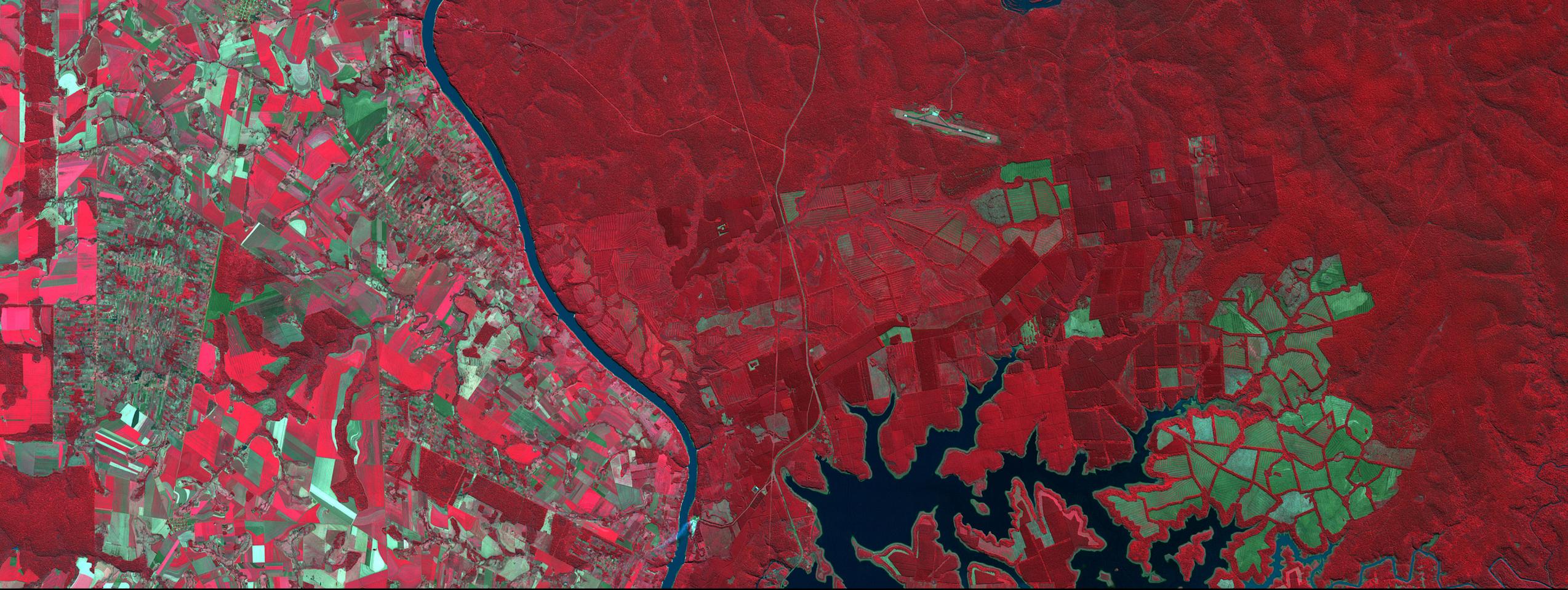


Herramientas que Trabajan con Datos de SMAP en Formato HD

<http://nsidc.org/data/smap/tools>

- Para la colección SPL3SMP, las opciones del servicio Earthdata Search permiten el reformateo de los archivos HDF5 nativos como:
 - GeoTIFF, ASCII, NetCDF-3, NetCDF4-CF, KML, and HDF-EOS5
- Para una tabla detallada de cuáles servicios de creación de subconjuntos, reformateo y reproyección están disponibles para colecciones de SMAP, por favor consulte:
 - <https://support.nsidc.org/entries/97456598-What-data-subsetting-reformatting-and-reprojection-services-are-available-for-SMAP-data->



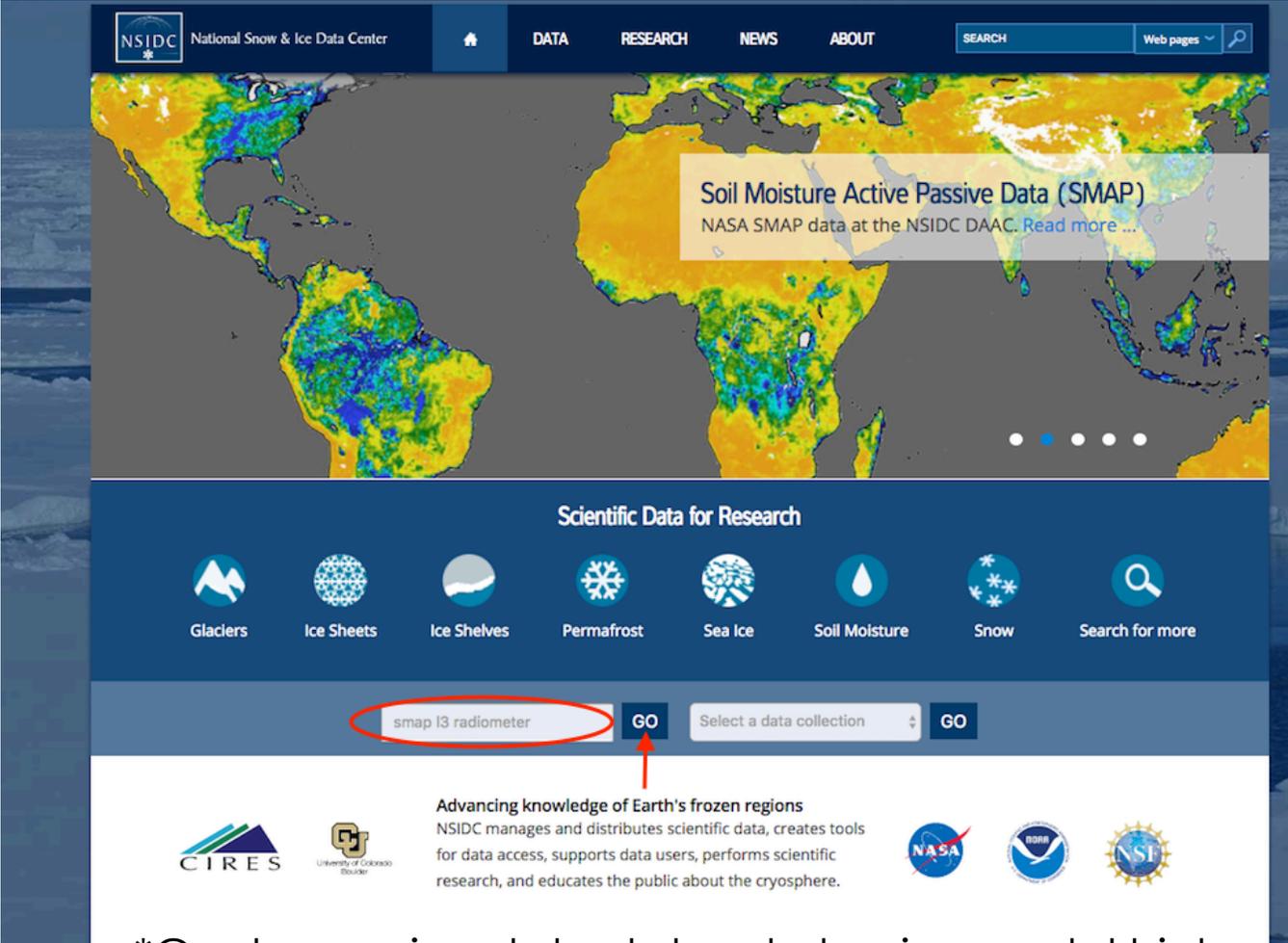


Descargar Datos de SMAP

Descubriendo los Datos SMAP de Data en el NSIDC

<http://nsidc.org/>

- NASA National Snow & Ice Data Center (NSIDC)* es un Distributed Active Archive Center (DAAC)**
- 1 de 12 DAACs del Sistema de Información y Datos del Sistema de Observación Terrestre (Earth Observing System Data and Information System o EOSDIS) de la NASA
- Distribuye casi 500 conjuntos de datos de la NASA
 - Principalmente enfocado en la criósfera



The screenshot shows the NSIDC website interface. At the top, there is a navigation bar with the NSIDC logo and the text "National Snow & Ice Data Center". The main navigation menu includes "DATA", "RESEARCH", "NEWS", and "ABOUT". A search bar is located on the right side of the navigation bar. Below the navigation bar, there is a large map of the world displaying soil moisture data. A text box over the map reads "Soil Moisture Active Passive Data (SMAP) NASA SMAP data at the NSIDC DAAC. Read more ...". Below the map, there is a section titled "Scientific Data for Research" with icons for various data types: Glaciers, Ice Sheets, Ice Shelves, Permafrost, Sea Ice, Soil Moisture, and Snow. A search bar is also present in this section, with the text "smap l3 radiometer" entered and a red circle around it. A red arrow points to the "GO" button next to the search bar. Below the search bar, there is a section with logos for CRES, University of Colorado Boulder, NASA, and NOAA, along with the text "Advancing knowledge of Earth's frozen regions NSIDC manages and distributes scientific data, creates tools for data access, supports data users, performs scientific research, and educates the public about the cryosphere."

*Centro nacional de datos de la nieve y del hielo

**Centro activo de archivos distribuidos



Descubriendo los Datos SMAP de Data en el NSIDC

<http://nsidc.org>

El hacer clic en el nombre del conjunto de datos en los resultados del Data Search lleva a la página de esa colección en el catálogo

The screenshot shows the NSIDC Data Search interface. At the top, there is a navigation bar with 'DATA', 'RESEARCH', 'NEWS', and 'ABOUT' tabs. A search bar contains the text 'smap l3 radiometer'. Below the search bar, there are filters for spatial coverage (N:90, S:-90, E:180, W:-180) and date ranges. The main content area displays a list of search results. The first result is 'SMAP L3 Radar/Radiometer Global Daily 9 km EASE-Grid Soil Moisture'. The second result is 'SMAP L3 Radiometer Global Daily 36 km EASE-Grid Soil Moisture'. The third result is 'AMSR-E/Aqua Daily L3 Surface Soil Moisture, Interpretive Parameters, & QC EASE-Grids'. The fourth result is 'Aquarius L3 Gridded 1-Degree Weekly Soil Moisture'. Each result includes a thumbnail map, a 'Get Data' button, and a summary of the data. A red arrow points to the 'Get Data' button of the second result, which has a dropdown menu with options: FTP, Reverb, Worldview, Subscription, HTTPS, and Earthdata Search. Another red arrow points to the 'Less Detail' link below the second result's summary.



Descubriendo los Datos SMAP de Data en el NSIDC

<http://nsidc.org/>

Data Set ID: SPL3SMP
SMAP L3 Radiometer Global Daily 36 km EASE-Grid Soil Moisture, Version 3

This Level-3 (L3) soil moisture product provides a composite of daily estimates of global land surface conditions retrieved by the Soil Moisture Active Passive (SMAP) passive microwave radiometer. SMAP L-band soil moisture data are resampled to a global, cylindrical 36 km Equal-Area Scalable Earth Grid, Version 2.0 (EASE-Grid 2.0).

Version Summary: [See more](#)

[Print version](#)

[Overview](#) [Citing These Data](#) [User Guide](#) [Support](#)

Spatial Coverage: N: 85.044, S: -85.044, E: 180, W: -180

Spatial Resolution: 36 km x 36 km

Temporal Coverage: 31 March 2015 to present

Temporal Resolution: 1 day

Parameter(s): Microwave > Brightness Temperature
Soils > Soil Moisture/Water Content > Soil Moisture

Platform(s): SMAP Observatory

Sensor(s): SMAP L-Band Radiometer

Data Format(s): HDF5

Version: V3

Data Contributor(s): O'Neill, P. E., S. Chan, E. G. Njoku, T. Jackson, and R. Bindlish.

Metadata XML: [View Metadata Record](#)

How to download data

DOWNLOADING DATA VIA FTP

Data can be downloaded through a Web browser or command line via FTP. When using a Web browser, the FTP link first directs you to an Optional Registration Form that if filled out, will allow you to receive notifications about updates or processing changes related to that specific data set. After completing the Optional Registration Form, the FTP directory becomes available. For additional help downloading data through an FTP client, go to User Services Online Support: FTP Client Data Access Web page.

[FTP](#)

DOWNLOADING DATA VIA HTTPS

Downloading data via HTTPS requires registration with NASA Earthdata Login. Once you have registered and logged in, data can be downloaded via a Web browser, command line, or client. Your NASA Earthdata Login will work at other NASA Earth Observing System Data and Information System (EOSIDS) Web sites, such as NASA Earthdata and NASA Reverb.

[HTTPS](#)

Get Data: Visualize

Worldview: This application allows you to interactively browse global satellite imagery within hours of it being acquired. You can also save it, share it, and download the underlying data.

Get Data: Package

Reverb: NASA search and order tool for subsetting, reprojecting, and reformatting data.

NOTE: Reverb will be decommissioned in the coming months and replaced with Earthdata Search. All links to Reverb will be removed at that time.

Subscription Service: Subscribe to have new data automatically sent when the data become available.

Earthdata Search: NASA's newest search and order tool for subsetting, reprojecting, and reformatting data.

En la página del catálogo, Ud. puede usar las opciones de **Get Data** para explorar las opciones de descarga, visualización y personalización de su pedido de datos

Ud. también notará que hay un resumen general de los datos en la colección. El hacer clic en las diferentes pestañas resaltará cómo citar estos datos, proporcionará una guía de usuario y le informará cómo comunicarse con el NSIDC para pedir ayuda



Descubriendo los Datos SMAP de Data en el NSIDC

<http://nsidc.org/>

NSIDC National Snow & Ice Data Center

DATA RESEARCH NEWS ABOUT

SEARCH Web pages

Data Set ID: SPL3SMP

SMAP L3 Radiometer Global Daily 36 km EASE-Grid Soil Moisture, Version 3

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Version Summary: [See more](#)

Print version

Overview **Citing These Data** User Guide Support

Data Citation

As a condition of using these data, you must cite the use of this data set using the following citation. For more information, see our [Use and Copyright](#) Web page.

O'Neill, P. E., S. Chan, E. G. Njoku, T. Jackson, and R. Bindlish. 2016. *SMAP L3 Radiometer Global Daily 36 km EASE-Grid Soil Moisture, Version 3*. [Indicate subset used]. Boulder, Colorado USA. NASA National Snow and Ice Data Center Distributed Active Archive Center. doi: <http://dx.doi.org/10.5067/7MINGFDCZTES>. [Date Accessed].

Find Data Stay Current Learn About Snow and Ice Get Help

Search NSIDC Data Arctic Sea Ice News and Analysis Icelights: Answers to Your Questions Knowledge Base

Reverb (NASA) Sea Ice Index (Passive microwave satellite data) Cryosphere Quick Facts Ask Us

IceBridge Portal MASIE (Daily sea ice extent, multi-source) All About Glaciers Etc.

Data Pool (Direct FTP for select data) Greenland Today All About Snow Use & Copyright

Data Collections List Newsroom Arctic Climatology - A Primer Web Policy

Jobs

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Version Summary: [See less](#)

Changes to this version include:

- Transitioned to Validated-Stage 2
- Uses updated SPL2SMP V3 Validated data as input version

Print version

Overview Citing These Data **User Guide** Support

Table of Contents

Collapse All / Open All

Detailed Data Description

Parameter Description

Surface soil moisture (0-5 cm) in cm^3/cm^3 derived from brightness temperatures is output on a fixed 36-km EASE-Grid 2.0.

Brightness temperature (TB) is a measure of the radiance of the microwave radiation welling upward from the top of the atmosphere to the satellite. The SMAP L-Band Radiometer measures four brightness temperature Stokes parameters: TH, TV, T3, and T4 at 1.41 GHz. TH and TV are the horizontally and vertically polarized brightness temperatures, respectively, and T3 and T4 are the third and fourth Stokes parameters, respectively.

Refer to the [Data Fields](#) document for details on all parameters.

Format

Data are in HDF5 format. For software and more information, including an HDF5 tutorial, visit the HDF Group's [HDF5](#) Web site.

File Contents

As shown in Figure 1, each HDF5 file is organized into the following main groups, which contain additional groups and/or data sets:



Descubriendo los Datos SMAP de Data en el NSIDC

<http://nsidc.org>



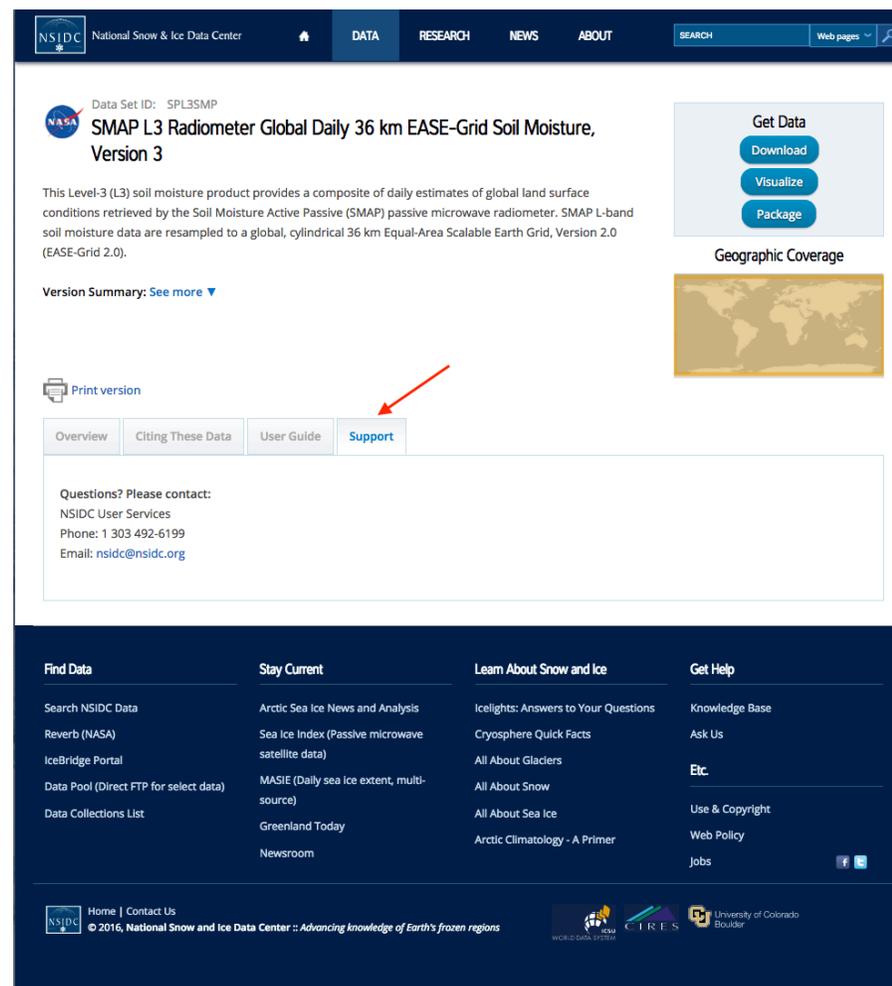
Overview Citing These Data **User Guide** Support

Table of Contents

- Detailed Data Description
 - Parameter Description
 - Format
 - File Contents
 - Soil Moisture Retrieval Data
 - Data Fields
 - Metadata Fields
 - File Naming Convention
 - File Size
 - Volume
 - Spatial Coverage
 - Spatial Resolution
 - Projection and Grid Description
 - EASE-Grid 2.0
 - Temporal Coverage
 - Temporal Coverage Gaps
 - Satellite and Processing Events
 - Forward Processing and Reprocessing
 - Latencies
 - Temporal Resolution
- Software and Tools
- Data Acquisition and Processing
 - Sensor or Instrument Description
 - Data Source
 - Theory of Measurements
 - Derivation Techniques and Algorithms
 - Processing Steps
 - Error Sources
 - Quality Assessment
 - Quality Overview
 - Data Flags
- References and Related Publications
- Contacts and Acknowledgments
- Document Information

Collapse All / Open All

Detailed Data Description



NSIDC National Snow & Ice Data Center

DATA RESEARCH NEWS ABOUT

SEARCH Web pages

Data Set ID: SPL3SMP

SMAP L3 Radiometer Global Daily 36 km EASE-Grid Soil Moisture, Version 3

This Level-3 (L3) soil moisture product provides a composite of daily estimates of global land surface conditions retrieved by the Soil Moisture Active Passive (SMAP) passive microwave radiometer. SMAP L-band soil moisture data are resampled to a global, cylindrical 36 km Equal-Area Scalable Earth Grid, Version 2.0 (EASE-Grid 2.0).

Get Data

- Download
- Visualize
- Package

Geographic Coverage



Version Summary: [See more](#)

Print version

Overview Citing These Data User Guide **Support**

Questions? Please contact:
NSIDC User Services
Phone: 1 303 492-6199
Email: nsidc@nsidc.org

Find Data	Stay Current	Learn About Snow and Ice	Get Help
Search NSIDC Data	Arctic Sea Ice News and Analysis	Icelights: Answers to Your Questions	Knowledge Base
Reverb (NASA)	Sea Ice Index (Passive microwave satellite data)	Cryosphere Quick Facts	Ask Us
IceBridge Portal	MASIE (Daily sea ice extent, multi-source)	All About Glaciers	Etc.
Data Pool (Direct FTP for select data)	Greenland Today	All About Snow	Use & Copyright
Data Collections List	Newsroom	All About Sea Ice	Web Policy
		Arctic Climatology - A Primer	Jobs

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© 2016, National Snow and Ice Data Center :: Advancing knowledge of Earth's frozen regions

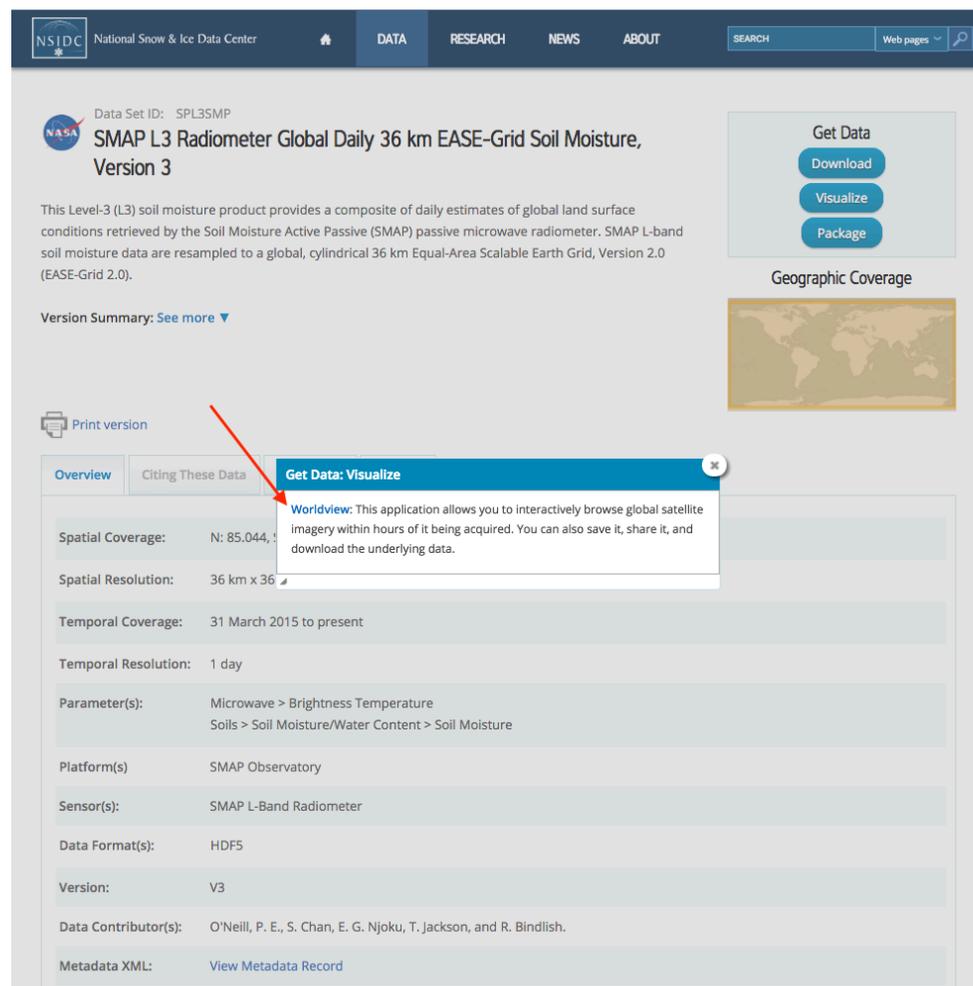
NSIDC WORLD DATA SYSTEM CRES University of Colorado Boulder



Descubriendo los Datos SMAP de Data en el NSIDC

<http://nsidc.org>

Volviendo al botón **Visualize** bajo **Get Data**, hagamos clic en **Worldview** y exploremos lo que esta aplicación tiene que ofrecer



The screenshot shows the NSIDC website interface for the SMAP L3 Radiometer data. The page title is "SMAP L3 Radiometer Global Daily 36 km EASE-Grid Soil Moisture, Version 3". Under the "Get Data" section, there are buttons for "Download", "Visualize", and "Package". A red arrow points to the "Visualize" button, which has a tooltip that reads: "Worldview: This application allows you to interactively browse global satellite imagery within hours of it being acquired. You can also save it, share it, and download the underlying data." Below this, there is a "Geographic Coverage" section with a world map. The main content area contains a table of metadata:

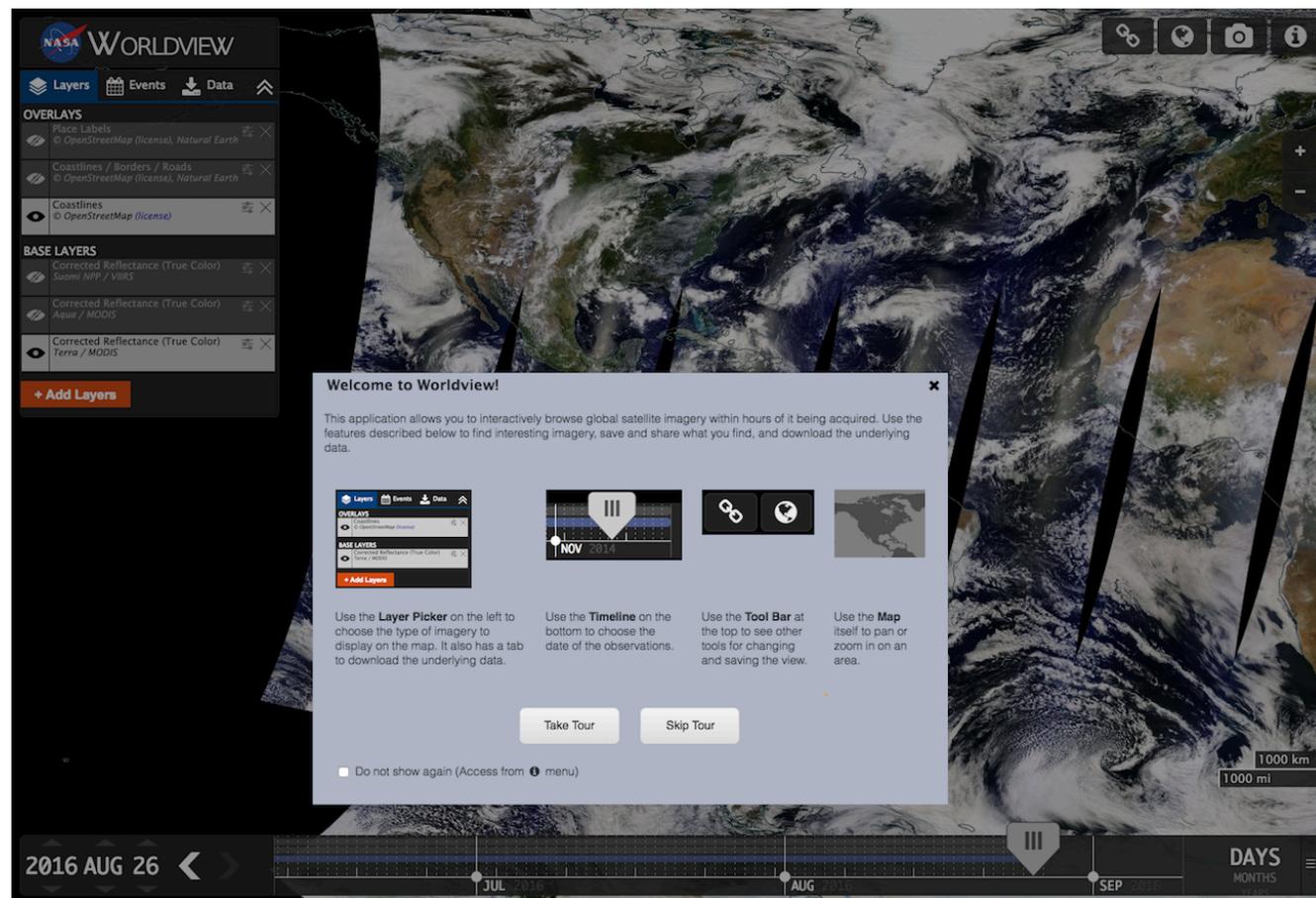
Overview	Citing These Data
Spatial Coverage:	N: 85,044, S: 85,044, E: 180, W: -180
Spatial Resolution:	36 km x 36 km
Temporal Coverage:	31 March 2015 to present
Temporal Resolution:	1 day
Parameter(s):	Microwave > Brightness Temperature Soils > Soil Moisture/Water Content > Soil Moisture
Platform(s):	SMAP Observatory
Sensor(s):	SMAP L-Band Radiometer
Data Format(s):	HDF5
Version:	V3
Data Contributor(s):	O'Neill, P. E., S. Chan, E. G. Njoku, T. Jackson, and R. Bindlish.
Metadata XML:	View Metadata Record



Explorando los Datos de SMAP en NASA Worldview

<http://worldview.earthdata.nasa.gov/>

- Worldview le ofrece la capacidad de revisar imágenes satelitales a nivel mundial de resolución completa y de descargar los archivos subyacentes de datos y de imágenes
- Usa “Global Imagery Browse Services” (GIBS)
- La mayoría de los más de 100 productos disponibles están actualizados dentro de 3 horas de observación



Visualización y Acceso a Datos de SMAP desde Worldview

Aquí, he reposicionado la capa costera Coastlines encima de Soil Moisture – note las demarcaciones visibles en el ártico encima de los datos de la humedad del suelo (Soil Moisture)

También, el hacer clic en el símbolo de la barra corrediza abrirá un diálogo para cambiar la opacidad de la capa, los umbrales y la paleta cromática

El hacer clic en el símbolo “X” de una capa la remueve del panel Layers

The screenshot shows the NASA WorldView interface. On the left, the 'LAYERS' panel lists several overlays, including 'Coastlines' and 'Soil Moisture 9 km (L3, Passive, Day)'. A red arrow points to the 'X' icon next to the 'Soil Moisture 9 km' layer. A second red arrow points to the 'Add Layers' button at the bottom of the panel. A dialog box for the 'Soil Moisture 9 km' layer is open, showing 'Opacity' at 100%, 'Thresholds' for 0.000 - 0.002 cm³/cm³ and >= 0.600 cm³/cm³, and a 'Color Palette' with 'Default' selected. A text box above the dialog says 'Expone el panel para modificar la apariencia de la capa'. Another text box below the dialog says 'Remueve esta capa del Layers Panel'. The map shows South America with a soil moisture overlay. The timeline at the bottom shows the date 2017 MAY 22 and navigation controls.



Explorando más Allá con la Interfaz de Worldview

Pestañas para visualizar capas actuales, eventos actuales en el mundo, o para descargar datos subyacentes

Colapse el panel de capas

Activar o desactivar la superposición

Haga clic para revisar las demás capas que se pueden agregar



Explorando más Allá con la Interfaz de Worldview

Copiar un URL de este mapa para compartir

Cambiar la proyección de la visualización

Capturar una imagen de la interfaz

Información sobre Worldview

Ampliar o reducir- también puede usar la rueda de desplazamiento en su mouse, hacer doble clic en el mapa o arrastrar presionando Shift para ampliar un área

2017 MAY 22

APR 2017 MAY 2017 JUN 2017 JUL 2017

DAYS MONTHS YEARS



Explorando más Allá con la Interfaz de Worldview

La línea azul indica que la capa está activada y disponible durante este intervalo

Deslizador para cambiar las fechas de la capa visualizada

Colapsar la línea del tiempo

Cambiar el mes, día o año de los datos visualizados

Las líneas grises indican capas apagadas pero disponibles durante este intervalo de tiempo

Avance rápido o retroceder un día a la vez

Cambiar el incremento más pequeño en la línea del tiempo



Explorando las Opciones de Capa

El hacer clic en el botón **add layers** abre este diálogo donde Ud. puede buscar por tema en la pestaña de “Hazards and Disasters” o bajo la pestaña de “Science Disciplines” donde estamos ahora. SMAP puede encontrarse bajo la categoría **Terrestrial Hydrosphere**. También se puede buscar por palabra clave en la parte superior del diálogo haciendo clic en la palabra “Search”

Haga clic y teclee aquí para buscar por palabra clave

Haga clic en esta categoría para expandir y revelar los datos de SMAP



Opciones de Capa de SMAP

The screenshot displays the NASA WorldView interface with a search window open. The search window lists various SMAP layers, including Soil Moisture 36 km and 9 km for different algorithms and polarizations. Two layers are checked: 'Soil Moisture 36 km (L3, Passive, Day)' and 'Soil Moisture 36 km (L3, Passive, Night)'. A red arrow points from a text box to the search window.

OVERLAYS

- Soil Moisture 36 km (L3, Passive, Night) SMAP / Radiometer
- Soil Moisture 36 km (L3, Passive, Day) SMAP / Radiometer
- Coastlines © OpenStreetMap (license)

BASE LAYERS

- Blue Marble (August 2004) MODIS / NASA Earth Observatory

Search

- SMAP / Radar
 - Soil Moisture 36 km (L2, Passive, Day, Single Channel Algorithm, H-pol)
- SMAP / Radiometer
 - Soil Moisture 36 km (L2, Passive, Day, Single Channel Algorithm, V-pol)
- GCOM-W1 / AMSR2
 - Soil Moisture 36 km (L2, Passive, Day, Dual Channel Algorithm)
- SMAP / Model Value-Ad
 - Soil Moisture 36 km (L2, Passive, Night, Single Channel Algorithm, H-pol)
- SMAP / Radar/Radiomet
 - Soil Moisture 36 km (L2, Passive, Night, Single Channel Algorithm, V-pol)
- GLDAS
 - Soil Moisture 36 km (L2, Passive, Night, Single Channel Algorithm, V-pol)
- SAC-D/Aquarius
 - Soil Moisture 36 km (L2, Passive, Night, Dual Channel Algorithm)
- NLDAS
 - Soil Moisture 9 km (L2, Passive, Day, Single Channel Algorithm, H-pol)
 - Soil Moisture 9 km (L2, Passive, Day, Single Channel Algorithm, V-pol)
 - Soil Moisture 9 km (L2, Passive, Day, Dual Channel Algorithm)
 - Soil Moisture 9 km (L2, Passive, Night, Single Channel Algorithm, H-pol)
 - Soil Moisture 9 km (L2, Passive, Night, Single Channel Algorithm, V-pol)
 - Soil Moisture 9 km (L2, Passive, Night, Dual Channel Algorithm)
 - Soil Moisture 36 km (L3, Passive, Day)
 - Soil Moisture 36 km (L3, Passive, Night)
 - Soil Moisture 9 km (L3, Passive, Day)
 - Soil Moisture 9 km (L3, Passive, Night)

Orbital Tracks:

- Ascending/Night
- Descending/Day

Soil Moisture 36 km (L2, Passive, Day | Night, Single Channel Algorithm, H Polarization)
Temporal coverage: 31 March 2015 - present

The Soil Moisture Active Passive (SMAP) "Soil Moisture 36 km (L2, Passive, Day | Night, Single Channel Algorithm, H Polarization)" layers display surface soil moisture in cm^3/cm^3 computed on a 36 km EASE-Grid 2.0 derived from the Single Channel Algorithm, H Polarization (SCA-H), one of five optional soil moisture algorithms for the 600-

Haga clic para revelar más detalles sobre las colecciones de radiómetro de SMAP



Agregando una Superposición: Costas / Fronteras / Carreteras

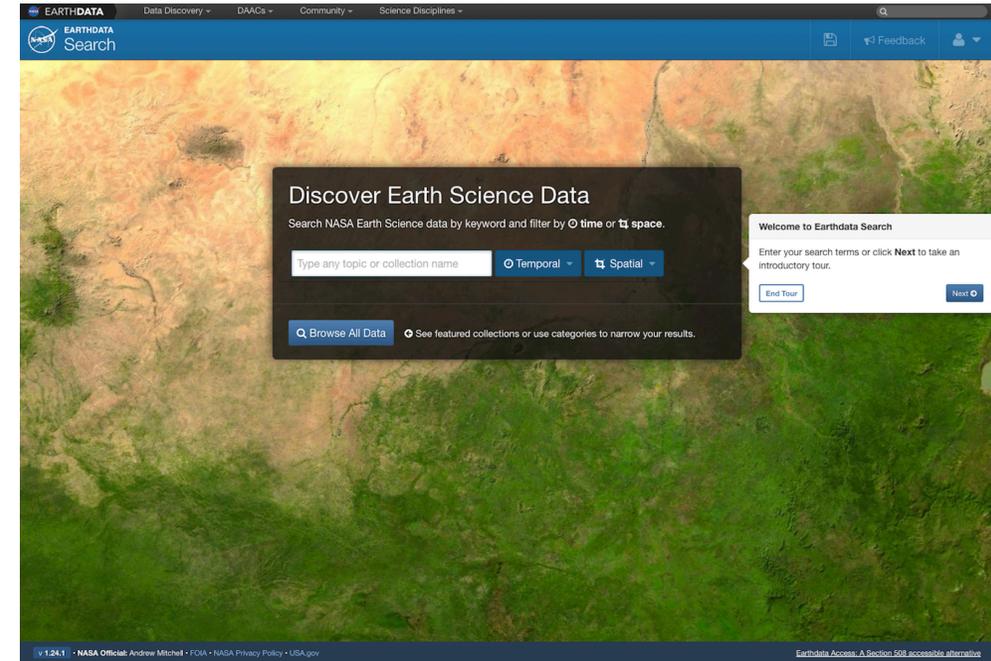
The screenshot shows the NASA WorldView interface. On the left, there are panels for 'OVERLAYS' and 'BASE LAYERS'. The 'OVERLAYS' panel includes 'Coastlines / Borders / Roads', 'Soil Moisture 36 km (L3, Passive, Night)', and 'Soil Moisture 36 km (L3, Passive, Day)'. The 'BASE LAYERS' panel includes 'Blue Marble (August 2004)'. A search bar is at the top center. Below it, a list of categories is shown: 'Areas of No Data (mask)', 'Blue Marble', 'Global 250m Water Map', 'Global Digital Elevation Map', 'Latitude-Longitude Lines', 'Orbital Track', and 'Reference Map'. The 'Reference Map' section is expanded, showing a list of map styles: 'OpenStreetMap.org', 'Coastlines / Borders / Roads' (checked), 'Place Labels', 'Coastlines', 'Land Mask', and 'Land / Water Map'. A red arrow points to the 'Coastlines / Borders / Roads' option. Below this list, there is a description of the 'Coastlines/Borders/Roads' layer and a note that the information is gleaned from OpenStreetMap and Natural Earth. A text box on the right contains the following text: 'He hecho clic en la categoría "Other" de la pestaña "Science Disciplines" y he cambiado la capa preprogramada "Coastlines" que sea "Coastlines/ Borders/ Roads" para agregarle más detalle al mapa'. At the bottom, there is a timeline showing the date '2016 MAY 24' and a scale bar for '1000 km' and '500 mi'.



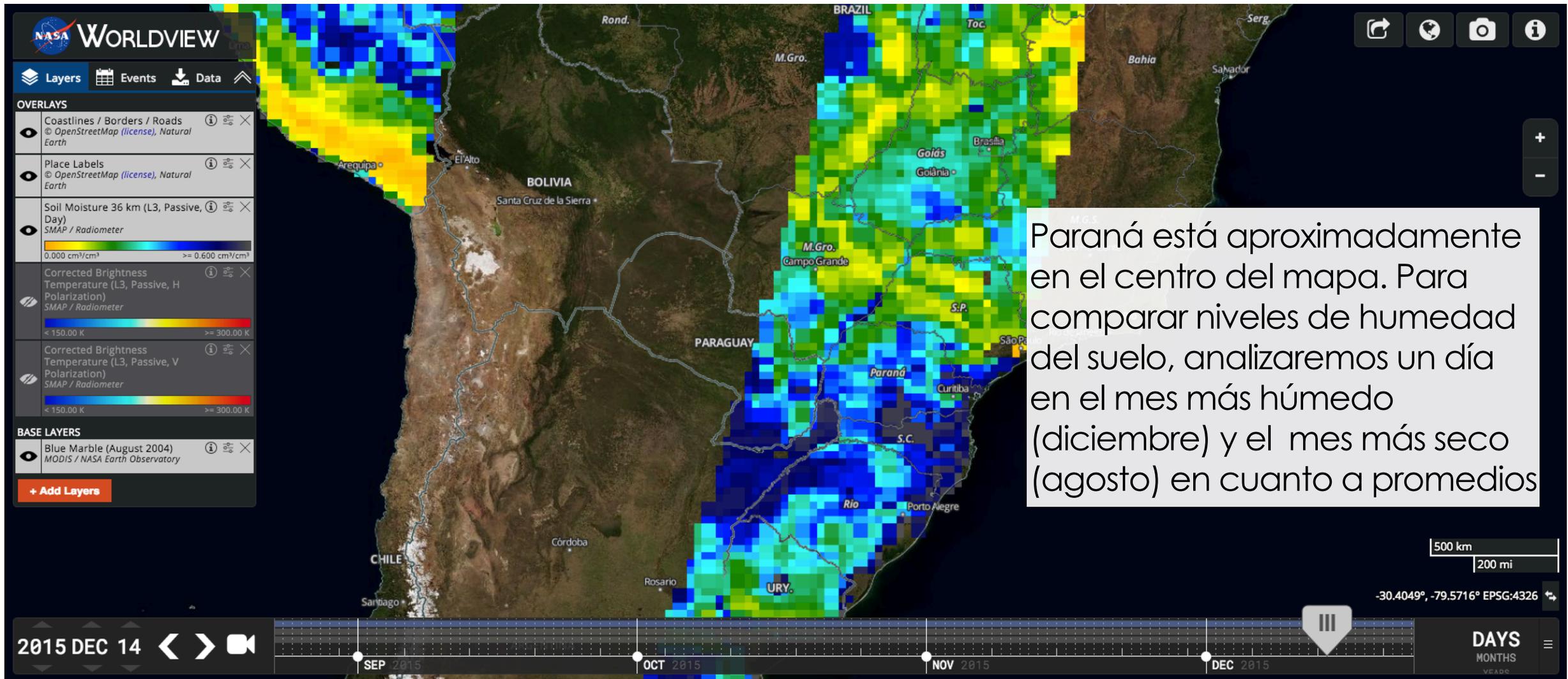
Acceso a Datos de SMAP con NASA Earthdata Search

<http://search.earthdata.nasa.gov/search>

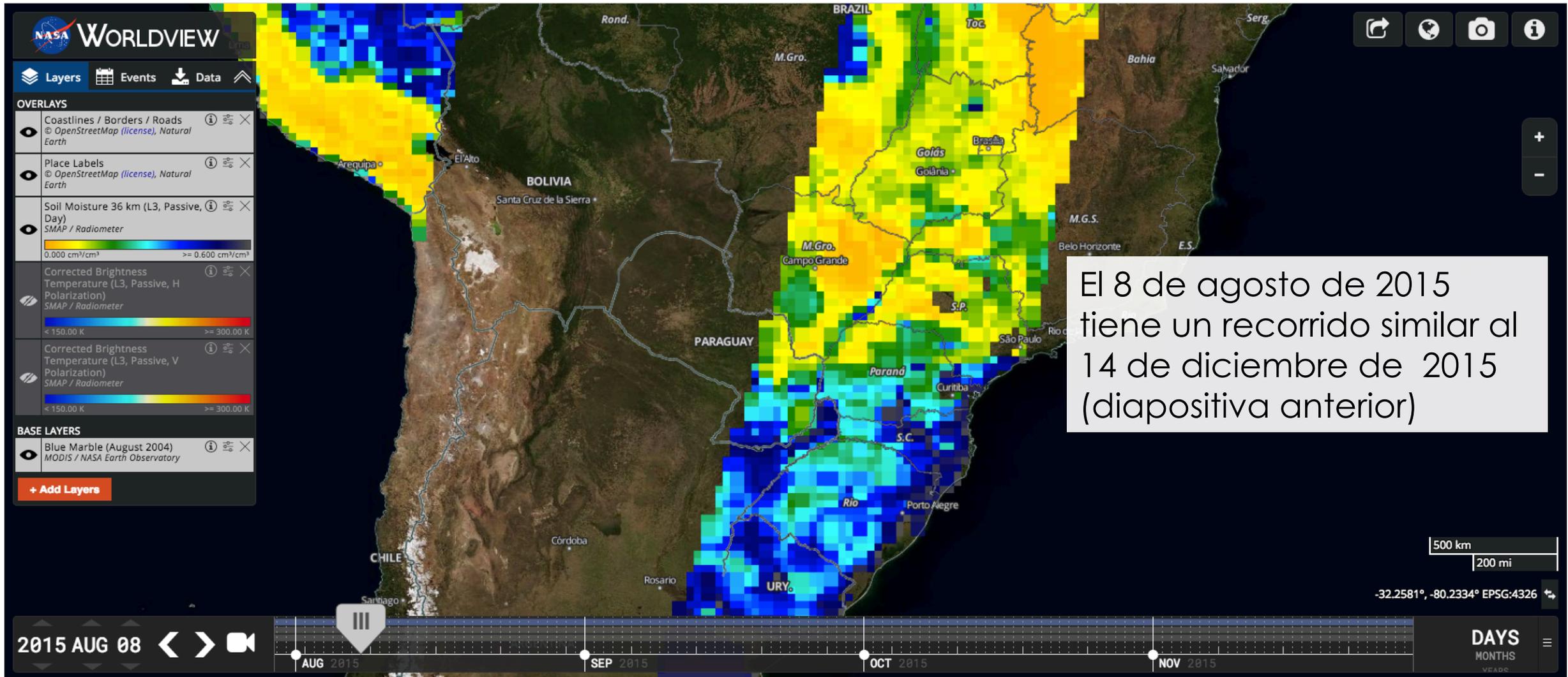
- Conecta a usuarios con sus datos al poner la búsqueda, el descubrimiento y acceso a datos en una sola aplicación
- Ofrece la capacidad de buscar dentro de varias disciplinas y DAACs
- Para la última demostración en vivo, voy a repasar
 - las opciones de filtrado de la interfaz para refinar una búsqueda del producto SMAP L3 Radiometer Global Daily 36 km EASE-Grid Soil Moisture (SPL3SMP)
 - las opciones de ordenar y crear subconjuntos de datos disponibles



Una Breve Comparación de la Humedad del Suelo a Través del Tiempo

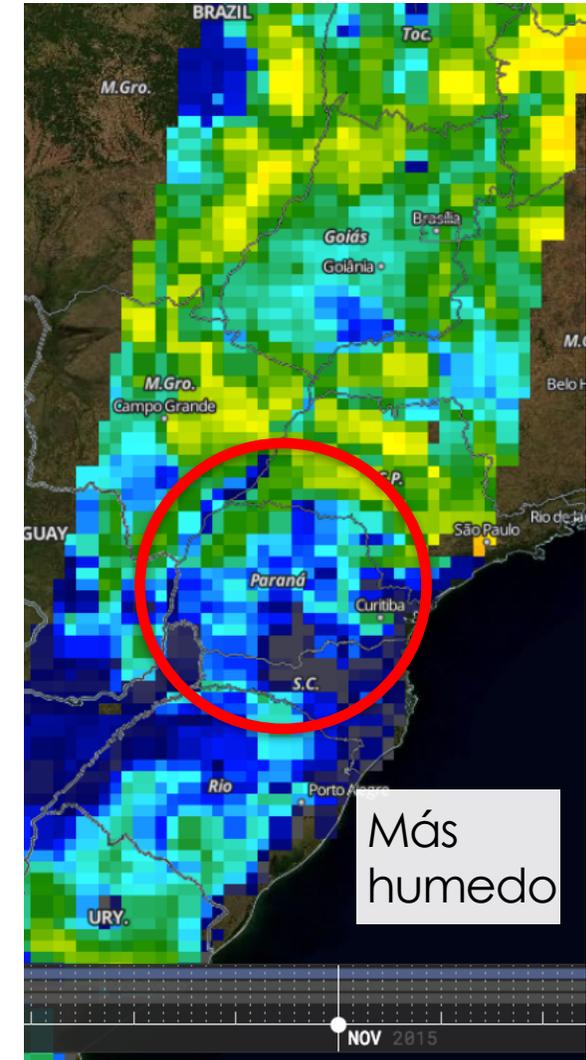
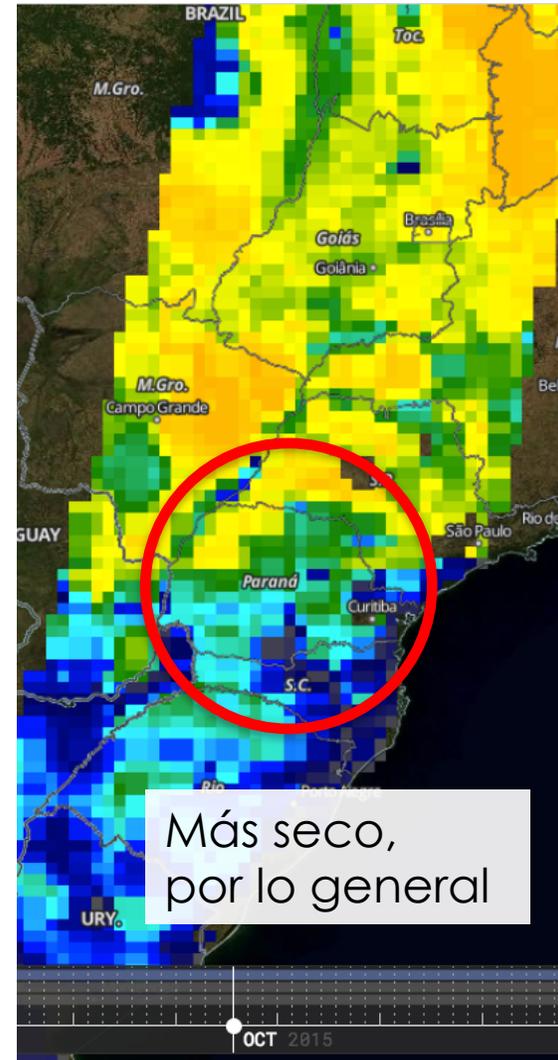


Una Breve Comparación de la Humedad del Suelo a Través del Tiempo



Una Breve Comparación de la Humedad del Suelo a Través del Tiempo

Usted puede usar la opción para compartir “**Share this Map**” para copiar los enlaces para los dos días que desea comparar y visualizarlos en dos ventanas de navegador una al lado de otra para una visualización rápida de las diferencias en la humedad del suelo entre las dos fechas



Descargando Desde Worldview:

Cambie a la pestaña Data

Indique esta casilla para seleccionar los datos de este día

Download Selected Data



Descargando Desde Worldview:

The screenshot displays the NASA Worldview interface with a map of South America. A data layer titled "SMAP L3 RADIOMETER GLOBAL DAILY 36 KM EASE-GRID SOIL MOISTURE" is selected, and the interface shows "2 SELECTED" data items. A "Select data" dialog box is open, showing a date range of "2015-12-14: 00:00-23:59 UTC". A red arrow points from the "Download Selected Data" button to the date range in the dialog box. Another red arrow points from the "2 SELECTED" text to the "Download Selected Data" button. A text box in the center of the screen contains the following text:

Avance al día siguiente de datos de humedad del suelo e indique la casilla – note que el panel de datos muestra “2 SELECTED”

The interface includes a left sidebar with layers, a top navigation bar with "Layers", "Events", and "Data" tabs, and a bottom timeline showing the date "2015 DEC 14".



Descargando Desde Worldview:

El hacer clic en nombres de archivos individuales (en azul) en la parte superior del cuadro descargará sólo ese archivo a su máquina. Dependiendo de su navegador, puede que Ud. necesite colocar el cursor sobre los archivos .qa y .xml files, hacer clic con el botón derecho y elegir la opción de **“Save link as”** (guardar como) para guardarlos en su máquina en vez de que simplemente abran una nueva ventana o pestaña

The screenshot shows the NASA Worldview interface. On the left, the 'Layers' panel is visible with 'SMAP L3 RADIOMETER GLOBAL DAILY 36 KM EASE-GRID SOIL MOISTURE' selected. A red arrow points to the 'Download Selected Data' button. In the center, a 'Bulk Download' dialog is open, showing a list of links for two dates: 2015-08-08 and 2015-12-14. A red arrow points to the 'List of Links' option. On the right, a map of South America is shown with a red arrow pointing to the 'List of cURL Commands' option. The bottom of the interface shows a timeline for the year 2015, with months from August to December visible.

Haga clic en el botón “Download Selected Data” y aparece este diálogo. Aquí Ud. puede remover archivos de su pedido y explorar opciones de descarga..

El hacer clic al fondo del cuadro en **“List of Links”** o en **“List of cURL Commands”** abrirá una nueva pestaña o ventana en su navegador con instrucciones sobre cómo utilizar estas opciones (ver próxima diapositiva)



Descargando Desde Worldview:

Download Links

```
https://n5eil01u.ecs.nsidc.org/DP4/SMAP/SPL3SMP.004/2015.08.08/SMAP_L3_SM_P_20150808_R14010_001.h5  
https://n5eil01u.ecs.nsidc.org/DP4/SMAP/SPL3SMP.004/2015.12.14/SMAP_L3_SM_P_20151214_R14010_001.h5
```

Using [wget](#) to Bulk Download Your Data

- 1) Copy the links above and paste into a text document. Save it as "links.txt"
- 2) Execute the following command to download all of your requested files:

```
wget --input-file=links.txt
```

Using [Free Download Manager](#) for Windows to Bulk Download Your Data

- 1) Copy the Download Links above to your clipboard
- 2) In Free Download Manager, go to File | Import | Import list of URLs from clipboard

Download Commands

Using [curl](#) to Bulk Download Your Data

Mac OS X / Linux

- 1) Copy the Download Commands above and paste into a text document. Save it as "download.sh"
- 2) Execute the following command to download all of your requested files:

```
sh ./download.sh
```

Windows

- 1) Copy the Download Commands above and paste into a text document. Save it as "download.bat"
- 2) Execute the following command to download all of your requested files:

```
download.bat
```



Búsqueda y Acceso a Datos de SMAP desde Earthdata Search

EARTHDATA Find a DAAC

EARTHDATA Search

SPL3SMP

Haga clic para ingresar en Earthdata

Haga clic para pedir ayuda o enviar un comentario

Búsqueda por palabra clave y opciones de filtración

Panel de filtros delanteros

Panel de colecciones

Agregue esta colección a un proyecto

2 Matching Collections

- Only include collections with granules Include non-EOSDIS collections
- Tip: Add + collections to your project to compare and download their data. [Learn More](#)

SMAP L3 Radiometer Global Daily 36 km EASE-Grid Soil Moisture V004

No image available

903 Granules • 2015-03-31 ongoing • Daily global composite of up-to 30 half-orbit L2_SM_P soil moisture estimates based on radiometer brightness temperature measurements acquired by the SMAP radiometer during ascending and descending half-orbits at approximately 6 PM and 6 AM local solar time.

MAP IMAGERY SUBSETTING SPL3SMP.V004 - NSIDC

SMAP Enhanced L3 Radiometer Global Daily 9 km EASE-Grid Soil Moisture V001

No image available

903 Granules • 2015-03-31 ongoing • Daily global composite of up to 30 half-orbit L2_SM_P soil moisture estimates based on radiometer brightness temperature measurements acquired by the SMAP radiometer during ascending and descending half-orbits at approximately 6 PM and 6 AM local solar time.

SUBSETTING SPL3SMP.E.V001 - NSIDC

Report a metadata problem

v 1.52.3 • Search Time: 0.3s • NASA Official: Stephen Berrick • FOIA • NASA Privacy Policy • USA.gov



Explorando la Interfaz de Earthdata Search

The screenshot shows the Earthdata Search web application. The search bar at the top contains the text 'SPL3SMP'. The interface includes a left sidebar with navigation options like 'Browse Collections', 'Features', 'Keywords', and 'Organizations'. The main area displays a map of the world with a search results list below it. Two search results are visible, both for 'SMAP L3 Radiometer Global Daily' soil moisture data. The interface is annotated with several Spanish text boxes and red arrows pointing to specific UI elements.

Annotations on the screenshot:

- Estereográfico Sud-polar**: Points to the map's projection.
- Geográfico (equirrectangular)**: Points to the map's projection.
- Estereográfico Nor-polar**: Points to the map's projection.
- Buscar por coordenadas espaciales**: Points to the search input field.
- Buscar de por rectángulo espacial**: Points to the search input field.
- Buscar por polígono espacial**: Points to the search input field.
- Mostrar opciones para la capa de base del mapa**: Points to the map layer controls.



Explorando la Interfaz de Earthdata Search

The screenshot shows the Earthdata Search interface with the search term 'SPL3SMP' entered. The interface includes a sidebar with filters for Features, Keywords, and Organizations. The main area displays a map of the Middle East and surrounding regions, with a search results list below it. Red arrows point from text boxes to specific UI elements: a filter icon, a delete icon, a polygon tool, and a map editing tool.

Visualizar filtros temporales y espaciales una vez configurados

Borrar selección o filtros

Recortar datos por polígono, punta, rectángulo, archivo o coordenadas cuadradales

Editar o borrar límites de filtros espaciales

2 Matching Collections

- Only include collections with granules Include non-EOSDIS collections

Tip: Add [+](#) collections to your project to compare and download their data. [Learn More](#)

SMAP L3 Radiometer Global Daily 36 km EASE-Grid Soil Moisture V004

No image available

903 Granules • 2015-03-31 ongoing • Daily global composite of up-to 30 half-orbit L2_SM_P soil moisture estimates based on radiometer brightness temperature measurements acquired by the SMAP radiometer during ascending and descending half-orbits at approximately 6 PM and 6 AM local solar time.

[MAP IMAGERY](#) [SUBSETTING](#) [SPL3SMP.V004 - NSIDC](#)

SMAP Enhanced L3 Radiometer Global Daily 9 km EASE-Grid Soil Moisture V001

No image available

903 Granules • 2015-03-31 ongoing • Daily global composite of up to 30 half-orbit L2_SM_P soil moisture estimates based on radiometer brightness temperature measurements acquired by the SMAP radiometer during ascending and descending half-orbits at approximately 6 PM and 6 AM local solar time.

[SUBSETTING](#) [SPL3SMP.E.V001 - NSIDC](#)

v 1.52.3 • Search Time: 0.3s • [NASA Official](#): Stephen Berrick • [FOIA](#) • [NASA Privacy Policy](#) • [USA.gov](#)

[Earthdata Access: A Section 508 accessible alternative](#)



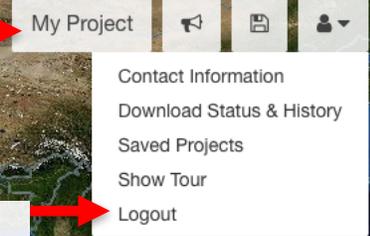
Cómo Buscar y Acceder Datos de SMAP Desde Earthdata Search

Si Ud. no tiene un nombre de usuario para ingresar a Earthdata, deberá registrarse antes de poder realizar su pedido de datos.

Una vez que hay ingresado, verá que la interfaz se ve algo diferente. Ahora Ud. puede guardar proyectos, ver otros proyectos que ha guardado y revisar su historial de pedidos

Haga clic para guardar esta configuración como un proyecto

Revise sus datos de contacto, pedidos recientes, proyectos guardados o salga de su cuenta



2 Matching Collections

Only include collections with granules Include non-EOSDIS collections
You have 1 collection in your current Project

Report a metadata problem

SMAP L3 Radiometer Global Daily 36 km EASE-Grid Soil Moisture V004
919 Granules • 2015-03-31 ongoing • Daily global composite of up-to 30 half-orbit L2_SM_P soil moisture estimates based on radiometer brightness temperature measurements acquired by the SMAP radiometer during ascending and descending half-orbits at approximately 6 PM and 6 AM local solar time.
MAP IMAGERY SUBSETTING SPL3SMP_v004 - NSIDC

SMAP Enhanced L3 Radiometer Global Daily 9 km EASE-Grid Soil Moisture V001
919 Granules • 2015-03-31 ongoing • Daily global composite of up to 30 half-orbit L2_SM_P soil moisture estimates based on radiometer brightness temperature measurements acquired by the SMAP radiometer during ascending and descending half-orbits at approximately 6 PM and 6 AM local solar time.
SUBSETTING SPL3SMP_E_v001 - NSIDC

Hacer clic en el símbolo de - removerá esta colección de su conjunto de datos



Configure el Filtro de Búsqueda Temporal

1. Ingrese
2. Use la opción “Recurring?” para limitar los gránulos (archivos) que son retornados a las fechas entre el 8 de agosto y el 14 de diciembre de 2015

The screenshot displays the EarthData Search interface. At the top, the search term 'SPL3SMP' is entered. A modal window for temporal filtering is open, showing the following settings: Start: 08-08 00:00:00, End: 12-14 23:59:59, Recurring? checked, and Year Range: 2015 - 2015. A red arrow points to the 'Apply Filter' button. Below the map, two matching collections are listed:

- SMAP L3 Radiometer Global Daily 36 km EASE-Grid Soil Moisture V004: 129 Granules • 2015-03-31 ongoing • Daily global composite of up-to 30 half-orbit L2_SM_P soil moisture estimates based on radiometer brightness temperature measurements acquired by the SMAP radiometer during ascending and descending half-orbits at approximately 6 PM and 6 AM local solar time.
- SMAP Enhanced L3 Radiometer Global Daily 9 km EASE-Grid Soil Moisture V001: 129 Granules • 2015-03-31 ongoing • Daily global composite of up to 30 half-orbit L2_SM_P soil moisture estimates based on radiometer brightness temperature measurements acquired by the SMAP radiometer during ascending and descending half-orbits at approximately 6 PM and 6 AM local solar time.



Configure el Filtro de Búsqueda Temporal

The screenshot shows the NASA Earthdata Search interface. At the top, the search bar contains 'SPL3SMP'. Below it, the temporal filter is set to 'Start: 08-08 00:00:00 Stop: 12-14 23:59:59 Range: 2015 - 2015'. A red arrow points to this filter. The search results show '2 Matching Collections'. The first result is 'SMAP L3 Radiometer Global Daily 30 km EASE-Grid Version V004' with '129 Granules'. A red arrow points to this number. The second result is 'SMAP Enhanced L3 Radiometer Global Daily 30 km EASE-Grid Version V001' with '129 Granules'. The interface also shows a map of the world and various navigation and filtering options.

Note la visualización de los detalles de búsqueda temporal

Note que el número de gránulos ha bajado de 919 a 129

Configure el filtro de búsqueda espacial sobre Paraná usando la opción rectángulo



Configure el Filtro de Búsqueda Espacial

Find a DAAC ▾

EARTHDATA Search

Type any topic, collection, or place name

Start: 08-08 00:00:00 Stop: 12-14 23:59:59 Range: 2015 - 2015

Rectangle: SW: -26.82421875, -55.0546; NE: -22.5703125, -47.77734;

2 Matching Collections

SMAP L3 Radiometer Global Daily 36 km EASE-Grid Soil Moisture V004

SMAP Enhanced L3 Radiometer Global Daily 9 km EASE-Grid Soil Moisture V001

Report a metadata problem

1.53.5 • Search Time: 0.3s • NASA Official: Stephen Berrick • FOIA • NASA Privacy Policy • USA.gov

Earthdata Access: A Section 508 accessible alternative

Cuando se fija la búsqueda espacial, las coordenadas se muestran junto con los detalles de mis especificaciones de búsqueda temporal

Agregue el proyecto actual a su colección y visualícelo. Esto es opcional – Ud. no necesita usar esta funcionalidad de proyecto para ordenar datos



Configure el Filtro de Búsqueda Espacial

The screenshot shows the EarthData Search interface. At the top, there is a search bar with the text "Type any topic, collection, or place name". Below the search bar, the search criteria are displayed: "Start: 08-08 00:00:00 Stop: 12-14 23:59:59 Range: 2015 - 2015" and "Rectangle: SW: -26.82421875,-55.0546; NE: -22.5703125,-47.77734". The search results show "2 Matching Collections". The first result is "SMAP L3 Radiometer Global Daily 36 km EASE-Grid Soil Moisture V004" with "2 Granules" and "2015-03-31 ongoing". The second result is "SMAP Enhanced L3 Radiometer Global Daily 9 km EASE-Grid Soil Moisture V001" with "129 Granules" and "2015-03-31 ongoing".

Quando se hace clic en el texto que dice **8 Granules** el panel cambia para visualizar todos lo 8 gránulos

Remover colección del proyecto actual

Ver detalles de colección



Gránulos Listados

Haga clic en el icono de descarga para descargar archivos individuales o el símbolo X para borrar algún archivo de la lista. Como hay bastantes archivos que no nos interesan, podríamos hacer clic en dos de las fechas que nos interesan y hacer una descarga directa. Para este ejemplo, vamos a borrar todos los gránulos que no nos interesan

Note que al hacer clic en el nombre de un gránulo se muestra la extensión del archivo en el mapa

Descargar datos de granos individuales

Ver detalles de los gránulos

Remove gránulo

Configurar y descargar datos de granos individuales

The screenshot shows the Earthdata interface with a search for 'SPL3SMP'. The map displays a region in Argentina. Below the map, a list of 20 granules is shown, sorted by start date. Each granule entry includes a file name (e.g., SMAP_L3_SM_P_20151214_R14010_001.h5) and a date range. Annotations with red arrows point to the download icon, the granule name, and the remove icon (X) in the granule list. A timeline at the bottom shows months from May to April 2016.



Gránulos Eliminados y Listo para Personalizar y Ordenar

3. Haga clic en el icono de descargar (**download**) para descargar archivos individuales

The screenshot shows the EarthData interface for the collection 'SMAP L3 Radiometer Global Daily 36 km EASE-Grid Soil Moisture V004'. A map of South America is displayed with a green rectangular selection box over a region in Brazil. Below the map, there are search filters for 'Start' (08-08 00:00:00), 'Stop' (12-14 23:59:59), and 'Range' (2015 - 2015). A 'Rectangle' filter is also present with coordinates: SW: -26.82421875, -55.0546; NE: -22.5703125, -47.77734. Below the map, there are two columns of granules:

Granule ID	Start Time	Stop Time
SMAP_L3_SM_P_20151214_R14010_001.h5	2015-12-14 00:00:00	2015-12-14 23:59:59
SMAP_L3_SM_P_20150808_R14010_001.h5	2015-08-08 00:00:00	2015-08-08 23:59:59

At the bottom of the interface, there is a timeline for the month of August 2015, with a red arrow pointing to the 'Download Data' button in the top right corner.



Para Personalizar Mi Descarga

4. Seleccione **Customize Product**
5. Configure el **Output file** como **GeoTIFF**
6. El **Spatial Subsetting** se poblará con las coordenadas en sus especificaciones de búsqueda espacial
7. Bajo **Band Subsetting**, haga clic para des-seleccionar todas las opciones
8. Elija los parámetros que desee

The screenshot shows a web interface for configuring a data download. It includes the following sections and elements:

- Email Address:** A text input field containing "email@here.com".
- Include Metadata and Processing History
- Reformat Output (Optional):** A section with "Output File Format" set to "GeoTIFF". A red arrow points to this dropdown menu.
- Spatial Subsetting (Optional):** A section with a checked "Enter bounding box" option. Below it are four input fields for coordinates: North (41.0625), West (-109.0546875), East (-101.953125), and South (36.984375). A world map on the right shows a bounding box over North America. A red arrow points to the "Enter bounding box" checkbox.
- Projection Options:** A section with "Re-projection Options" set to "Geographic".
- Band Subsetting (Optional):** A section with a "Choose Bands" label and a "Filter bands here" input field. Below the input field, it says "of 69 bands selected" and lists "SPL3SMP" and "Soil Moisture Retrieval Data AM" with checkboxes. A red arrow points to the "Choose Bands" label.



Para Personalizar Mi Descarga

Elija los parámetros que desee

- 2 of 70 bands selected
- SPL3SMP
 - Soil_Moisture_Retrieval_Data_AM
 - albedo
 - boresight_incidence
 - EASE_column_index
 - EASE_row_index
 - freeze_thaw_fraction
 - landcover_class
 - landcover_class_fraction
 - latitude
 - latitude_centroid
 - longitude
 - longitude_centroid
 - radar_water_body_fraction
 - retrieval_qual_flag
 - roughness_coefficient
 - soil_moisture
 - soil_moisture_error
 - static_water_body_fraction
 - surface_flag
 - surface_temperature
 - tb_3_corrected
 - tb_4_corrected
 - tb_h_corrected
 - tb_qual_flag_3
 - tb_qual_flag_4
 - tb_qual_flag_h
 - tb_qual_flag_v
 - tb_time_seconds
 - tb_time_utc [not available]
 - tb_v_corrected
 - vegetation_opacity
 - vegetation_water_content



Para Enviar un Pedido Para SMAP

The screenshot shows the Earthdata website interface. At the top left, there is the NASA Earthdata logo and a search bar with the text "Find a DAAC". On the top right, there are notification and user profile icons. Below the header, there is a "Back to Search Session" link. The main content area is titled "Data Access" with a subtitle "Review and select service options for your data prior to download". Two steps are highlighted with green boxes: Step 1 is "SMAP L3 Radiometer Global Daily 36 km EASE-Grid Soil Moisture V004" and Step 2 is "Contact Information & Submit". Under Step 2, there is a white box containing the following text: "Elizabeth Hook (elizabeth.a.hook@nasa.gov)", "Organization: NASA ARSET", "Country: United States", "Affiliation: Government", "Study Area: Other", and "User Type: Public User". Below this text is a blue button labeled "Edit Profile in Earthdata Login". At the bottom right of the white box, there is a "Submit" button, which is highlighted with a red arrow.

1 SMAP L3 Radiometer Global Daily 36 km EASE-Grid Soil Moisture V004

2 Contact Information & Submit

Elizabeth Hook (elizabeth.a.hook@nasa.gov)
Organization: NASA ARSET
Country: United States
Affiliation: Government
Study Area: Other
User Type: Public User

Edit Profile in Earthdata Login ↗

Submit



Para Recuperar un Producto de Salida de SMAP

Ud. puede hacer clic en el enlace html link para ver los detalles del pedido o puede hacer clic en el archivo zip para descargar todo de una sola vez

The following collections are being processed

When the data becomes available, an email containing download links will be sent to the address you provided.

- **SMAP L3 Radiometer Global Daily 36 km EASE-Grid Soil Moisture V004** Complete

Your request is complete and can be downloaded using the following urls:

- <https://n5eil01u.ecs.nsidc.org/esir/5000000041518.html>
- <https://n5eil01u.ecs.nsidc.org/esir/5000000041518.zip>

Next Steps

- [Back to Earthdata Search Results](#)
- [Start a New Earthdata Search Session](#)
- [View Your Download Status & History](#)

Estatus de pedido – una vez completado, se ven los URLs

v 1.53.5 • NASA Official: Stephen Berrick • FOIA • NASA Privacy Policy • USA.gov

Earthdata Access: A Section 508 accessible alternative



Para Recuperar mi Producto de SMAP:

Cuando Ud. elija reformatear el producto (output) como GeoTIFF, recibirá un tif por banda seleccionada por cada gránulo en su pedido

9. Descargue las imágenes de la humedad del suelo en tif

Output files for request id: 5000000040524

Click on the following link for a Request Summary:

[requestSummary.txt](#)

Retrieve list of files as a text listing (no html):

[5000000040524.txt](#)

Download all files in a single Zip file:

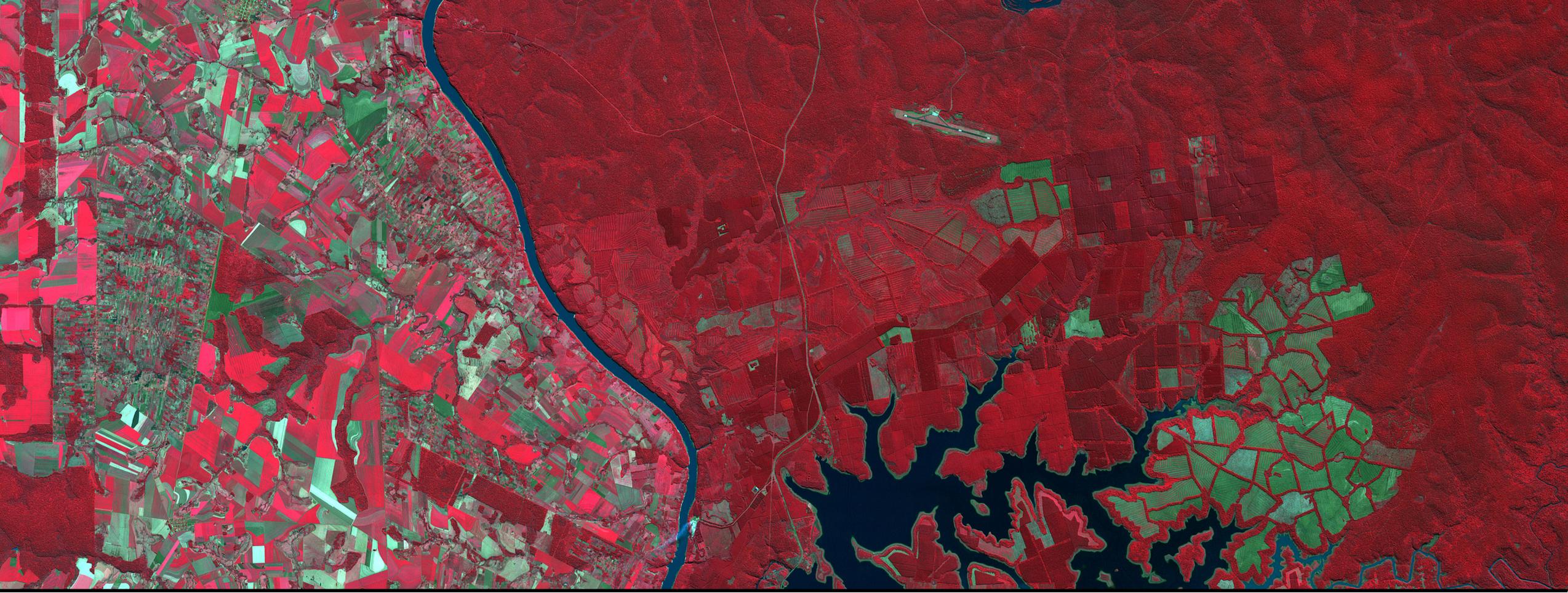
[5000000040524.zip](#)

Click on the following links for generated output files:

For Input Granule: 105619863

[SMAP L3 SM P 20150522 R14010 001 Soil Moisture Retrieval Data AM albedo 13b20a7e.tif](#) (<1 MB, SCIENCE, image/tiff)
[SMAP L3 SM P 20150522 R14010 001 Soil Moisture Retrieval Data AM boresight incidence 13b20a7e.tif](#) (<1 MB, SCIENCE, image/tiff)
[SMAP L3 SM P 20150522 R14010 001 Soil Moisture Retrieval Data AM EASE column index 13b20a7e.tif](#) (<1 MB, SCIENCE, image/tiff)
[SMAP L3 SM P 20150522 R14010 001 Soil Moisture Retrieval Data AM EASE row index 13b20a7e.tif](#) (<1 MB, SCIENCE, image/tiff)
[SMAP L3 SM P 20150522 R14010 001 Soil Moisture Retrieval Data AM freeze thaw fraction 13b20a7e.tif](#) (<1 MB, SCIENCE, image/tiff)
[SMAP L3 SM P 20150522 R14010 001 Soil Moisture Retrieval Data AM landcover class Bands 1 13b20a7e.tif](#) (<1 MB, SCIENCE, image/tiff)
[SMAP L3 SM P 20150522 R14010 001 Soil Moisture Retrieval Data AM landcover class Bands 2 13b20a7e.tif](#) (<1 MB, SCIENCE, image/tiff)
[SMAP L3 SM P 20150522 R14010 001 Soil Moisture Retrieval Data AM landcover class Bands 3 13b20a7e.tif](#) (<1 MB, SCIENCE, image/tiff)
[SMAP L3 SM P 20150522 R14010 001 Soil Moisture Retrieval Data AM landcover class fraction Bands 1 13b20a7e.tif](#) (<1 MB, SCIENCE, image/tiff)
[SMAP L3 SM P 20150522 R14010 001 Soil Moisture Retrieval Data AM landcover class fraction Bands 2 13b20a7e.tif](#) (<1 MB, SCIENCE, image/tiff)
[SMAP L3 SM P 20150522 R14010 001 Soil Moisture Retrieval Data AM landcover class fraction Bands 3 13b20a7e.tif](#) (<1 MB, SCIENCE, image/tiff)
[SMAP L3 SM P 20150522 R14010 001 Soil Moisture Retrieval Data AM latitude 13b20a7e.tif](#) (<1 MB, SCIENCE, image/tiff)
[SMAP L3 SM P 20150522 R14010 001 Soil Moisture Retrieval Data AM latitude centroid 13b20a7e.tif](#) (<1 MB, SCIENCE, image/tiff)
[SMAP L3 SM P 20150522 R14010 001 Soil Moisture Retrieval Data AM longitude 13b20a7e.tif](#) (<1 MB, SCIENCE, image/tiff)
[SMAP L3 SM P 20150522 R14010 001 Soil Moisture Retrieval Data AM longitude centroid 13b20a7e.tif](#) (<1 MB, SCIENCE, image/tiff)
[SMAP L3 SM P 20150522 R14010 001 Soil Moisture Retrieval Data AM radar water body fraction 13b20a7e.tif](#) (<1 MB, SCIENCE, image/tiff)
[SMAP L3 SM P 20150522 R14010 001 Soil Moisture Retrieval Data AM retrieval qual flag 13b20a7e.tif](#) (<1 MB, SCIENCE, image/tiff)
[SMAP L3 SM P 20150522 R14010 001 Soil Moisture Retrieval Data AM roughness coefficient 13b20a7e.tif](#) (<1 MB, SCIENCE, image/tiff)
[SMAP L3 SM P 20150522 R14010 001 Soil Moisture Retrieval Data AM soil moisture 13b20a7e.tif](#) (<1 MB, SCIENCE, image/tiff)
[SMAP L3 SM P 20150522 R14010 001 Soil Moisture Retrieval Data AM soil moisture error 13b20a7e.tif](#) (<1 MB, SCIENCE, image/tiff)
[SMAP L3 SM P 20150522 R14010 001 Soil Moisture Retrieval Data AM static water body fraction 13b20a7e.tif](#) (<1 MB, SCIENCE, image/tiff)

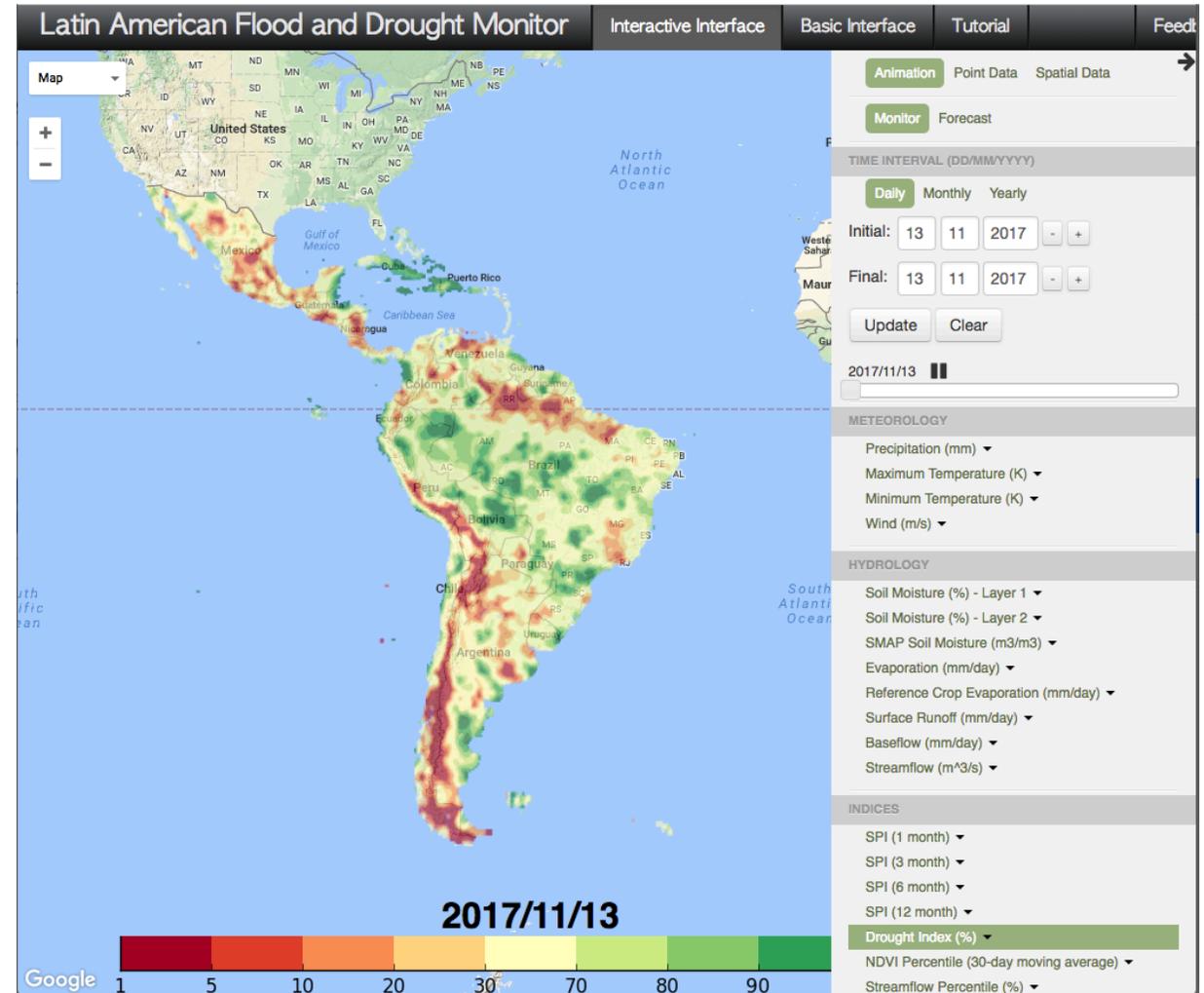




Análisis con Datos de SMAP

Extracción de la Humedad del Suelo Observada por SMAP

1. Vaya a la herramienta de monitoreo “U.S. Flood and Drought Monitor” de la Universidad de Princeton:
 - <http://stream.princeton.edu/LAFDM/WEBPAGE/interface.php?locale=en>
 - Esta es la manera más directa de extraer los valores de la humedad del suelo de SMAP



Especificación de Parámetros

2. En la ventana superior derecha, seleccione **Spatial Data**
3. Bajo **Time Interval**, seleccione **monthly** (mensual). Especifique **Jan. 2016**
4. Trace un cuadrado sobre la cuenca hidrológica
5. Bajo **Hydrology**, seleccione **SMAP soil moisture > Level 3-1 day composite**
6. Para **File Format**, seleccione **arc ascii**
7. Especifique su correo electrónico y haga clic en **Submit Data Request**

Monitor Forecast

TIME INTERVAL (DD/MM/YYYY)

Daily Monthly Yearly

Initial: 11 2017 - +

Final: 11 2017 - +

Update Clear

SPATIAL DATA SELECTION

Map Click Manual Entry

soilm: Level 3 - 1 day composite

METEOROLOGY

HYDROLOGY

Soil Moisture (%) - Layer 1

Soil Moisture (%) - Layer 2

SMAP Soil Moisture (m3/m3)

Evaporation (mm/day)

Reference Crop Evaporation (mm/day)

Surface Runoff (mm/day)

Baseflow (mm/day)

Streamflow (m³/s)

INDICES

SURFACE FLUXES

VEGETATION

File Format: arc ascii netcdf

Email address

Submit Data Request

Estimated Download Size: 0.00 MB

Please provide an email.



Para Abrir el Archivo

8. Abra el archivo de texto con Excel
 - Los resultados contienen la humedad del suelo media para el mes de enero de 2016 para los pixeles dentro del rectángulo especificado
9. Repita el mismo proceso de extracción para Jan (enero) 2017, Feb 2016 y Feb 2017

